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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,282	09/25/2006	Paul T. Wegener	100673.0010US	6475

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EXAMINER

JETTON, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3748

MAIL DATE	DELIVERY MODE
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06/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,282	Applicant(s) WEGENER ET AL.	
	Examiner CHRISTOPHER JETTON	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by **Danihel (US 4,598,547)**.

Regarding claims 1-5, Danihel discloses a wave energy harvester (Fig 1, 10) comprising: an at least partially submersed amplifier element (Fig 1, 64), wherein the element is functionally coupled (Fig 1, 16) to a generator such that at least a portion of vertical movement of the element actuates the generator (Col 4 Lines 23-28); and wherein the amplifier element has a shape effective to translate forward velocity of water of a wave relative to the element into an upward force of the element (Fig 1, 75 Col 4 Lines 48-55). The shape of the amplifier element has a hydrofoil shape or a hull shape (Fig 1, 75). The generator comprises an electric generator (Col 2 Lines 1-2). A structure (Fig 1, 12) that retains the harvester in a laterally fixed position relative to a sea floor, and that allows vertical movement of the amplifier element relative to the sea floor.

Regarding claims 6-10, Danihel discloses a wave energy harvester (Fig 1, 10) comprising a hydrofoil element (Fig 1, 64) that produces a bi-directional vertical force

Art Unit: 3748

from a horizontal motion of water of a wave, wherein the bi-directional force is directed upwards as the wave approaches a peak and directed downwards as the wave approaches a trough. The hydrofoil element is completely submersed (Fig 1, 64). The hydrofoil element is coupled to a buoyant element (Fig 1, 23) that is at least partially submersed. A generator (Col 2 Lines 1-2) that is actuated using at least part of the bi-directional force. A structure (Fig 1, 12) that retains the harvester in a fixed relationship to a sea floor, and that further restricts movement of the hydrofoil element to substantially vertical movement.

Regarding claims 11-14, Danihel discloses a floating device comprising a hydrofoil (Fig 1, 75) configured to reduce or amplify a buoyant force of a wave passing the device. A frame (Fig 1, 64) to which the hydrofoil is coupled and that is configured to allow change of a pitch angle of the hydrofoil relative to a plane normal to a direction of the wave to thereby effect at least one of reduction and amplification of the buoyant force. A structure (Fig 1, 12) that retains the device in a fixed relationship to a sea floor, and that further restricts movement of the hydrofoil to substantially vertical movement. A generator (Col 2 Lines 1-2) that is actuated at least in part by the substantially vertical movement.

Regarding claims 15 and 16, Danihel discloses a wave energy harvester (Fig 1, 10) comprising a neutral buoyancy body (Fig 1, 23) coupled to an amplifier element (Fig 1, 64) that is configured such that the element and the body is raised by forward water motion of a wave moving past the harvester, and such that energy is extracted by

Art Unit: 3748

resisting lowering of the neutral buoyancy body and amplifier element following passage of the wave. The amplifier element comprises a hydrofoil (Fig 1, 75).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Danihel (US 4,598,547) in view Heck (US 4,447,740)**.

Regarding claim 17, Danihel fails to disclose energy is extracted using a turbine that is coupled to the neutral buoyancy body.

However, Heck teaches a wave powered electrical generator (10) provides a buoyant float (12) for riding waves in a bobbing fashion. Attached to float (12) is outer shaft (20) depending downwardly from float (12). Inner rotatable drive shaft (25) is rotatably mounted within outer shaft (20) and transmit rotational energy to alternator or generator (60) responsive to wave action on turbine (30) (Fig 1 Col 3 Lines 49-59).

It would have been obvious to one of ordinary skill in the art to modify Danihel's invention with turbine taught by Heck since the turbine would have a more direct connection for power production.

Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Danihel (US 4,598,547) in view Houser (US 5,411,377)**.

Regarding claims 18, 19, and 21, Danihel fails to disclose the wave energy harvester becomes submerged when a storm churns a water surface.

However, Houser teaches for protection of the system in extremely high seas and heavy storms a method is provided for submerging the entire pump system. This is provided by including a solenoid valve (82) of toroidal buoyancy vessel (34). During high seas solenoid valve (82) is opened allowing buoyancy vessel (34) to be flooded submerging the entire pump system for protecting against damage (Col 5 Lines 56-62).

It would have been obvious to one of ordinary skill in the art to modify Danihel's invention with the submerging system taught by Houser since doing so would prevent damage to the system when the surrounding environment became dangerous.

Regarding claim 20, Danihel discloses a hydrofoil (Fig 1, 75).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER JETTON whose telephone number is (571)270-7108. The examiner can normally be reached on Monday through Friday, 7:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3748

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas E. Denion/
Supervisory Patent Examiner, Art Unit 3748

/CHRISTOPHER JETTON/
Examiner, Art Unit 3748